

Daniel Graf

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Education

PhD Studies in Computer Science – ETH Zurich, Switzerland – started September 2015

- Advisor: Prof. Dr. Peter Widmayer, Institute of Theoretical Computer Science, ti.inf.ethz.ch
Group for *Algorithms, Data Structures, and Applications*, www.pw.ethz.ch

Master of Science in Computer Science – ETH Zurich, Switzerland – September 2013 to August 2015

- Final grade point average: 5.99 *
- Focus track: Theoretical Computer Science
- Master thesis on *Scheduling and Sorting Algorithms for Robotic Warehousing Systems*
Advisors: Katerina Böhmova and Prof. Dr. Peter Widmayer, details: dgraf.ch/treesort

Exchange Semester – University of Washington, Seattle, USA – April to August 2013

- Visiting graduate student in Computer Science, grade point average: 4.0 **
- Two summer research projects with Prof. Dr. Luke Zettlemoyer in artificial intelligence and with Prof. Dr. Ira Kemelmacher-Shlizerman in computer vision and video processing

Bachelor of Science in Computer Science – ETH Zurich, Switzerland – September 2010 to August 2013

- Final grade point average: 5.91 *
- Bachelor thesis on *Image Retargeting for Mobile Devices*
Advisors: Dr. Daniele Panozzo and Prof. Dr. Olga Sorkine-Hornung, details: refoorm.at

Matura, Swiss High School Degree – Kantonsschule Sargans, Switzerland – August 2005 to July 2009

- Degree with focus on physics and applied mathematics, final grade point average: 5.89 *

Awards

ETH D-INFK Willi Studer Award 2016

- Awarded for the best Master degree of the year in the Department of Computer Science

ETH Excellence Scholarship 2013

- Awarded for the Master studies at ETH Zurich

International Olympiad in Informatics

- Bronze medal at the International Olympiad in Informatics (IOI), August 2009 in Bulgaria
- Participation at the Central European Olympiad in Informatics (CEOI), July 2009 in Romania
- Gold medal at the Swiss National Olympiad in Informatics (SOI), June 2009

ACM ICPC (International Collegiate Programming Contest)

- 2nd Place for ETH Zurich at the SWERC regional contest in Valencia 2013 and in Porto 2014 (out of 44/36)
- ACM ICPC World Finals in June 2014 in Yekaterinburg, Russia and in May 2015 in Marrakech, Morocco
- 1st Place at the Helvetic Coding Contest at EPFL in 2014 (out of 54), 3rd places in 2012, 2015 & 2017

Various Computer Science Contests

- Google Hash Code March 2016: Qualification: 41st Place (out of 1054), Finals in Paris: 8th Place (out of 50)
- Facebook Hackathon April 2013: 2nd Place at the Pacific Northwest Regional in Seattle
- Swiss Youth in Science 2010: Top-grade *excellent* for end of high school project about the game-theoretical analysis of a Swiss card game, presented at the European Science Expo in Moscow
- Robot Team Challenge 2008: 1st place with a self-navigating robot

* Switzerland uses a 6-point grading system, where 6 represents *excellent*, 4 *pass* and 1 *very poor*.

** The University of Washington uses a 4-point grading system, where 4 represents *excellent* and 0 *very poor*.

Work Experience

Software Engineering Internship at Google, Youtube Content ID, September to December 2014, Zurich

Software Engineering Internship at Apple, Apple Maps Traffic, February to May 2018, Sunnyvale, CA

Teaching Experience

Teaching Assistant, Algorithms Lab, Fall 2015, 2016, 2017, ETH Zurich

- Taught biweekly two-hour lectures, created coding exercises and 12 hour final exam for 150 students

Teaching Assistant, Algorithms and Data Structures,

Spring 2014, 2015, 2016, Fall 2016, Prof. Dr. Peter Widmayer, ETH Zurich

- Taught exercise classes for two hours a week and graded weekly assignments of 20 students
- Involved in designing and organizing computer-based coding exam for 280 students in February 2017

Teaching Assistant, Discrete Mathematics, Fall 2012, Prof. Dr. Ueli Maurer, ETH Zurich

- Taught exercise classes for two hours a week and graded weekly assignments of 20 students

Student Project Supervisor, 2017, ETH Zurich

- Supervised the Master thesis of Kieran Nirikko (jointly with Prof. Dr. Peter Widmayer), the Master thesis of Karim Labib and a summer research internship of Stefan Tiegel (both jointly with Dr. Przemysław Uznański)

Main Organizer, Swiss Olympiad in Informatics, 2010 - 2016, soi.ch

- Prepared tasks, training camps and workshops all over Switzerland with lectures on various algorithms
- Lead trips of Swiss teams to BOI in Romania and IOI in Italy, Taiwan, Kazakhstan and Russia
- Problem author at the International Olympiad in Informatics 2017 in Tehran, Iran: ioi2017.org/contest/tasks/

Problem Setter and Coach, ACM ICPC Team of ETH Zurich, 2015 - 2017, acm.vis.ethz.ch

- Organized and executed the local team selection contest with 75 contestants jointly with EPF Lausanne.

Research Experience

Research Interests: graph algorithms, data structures, algorithm engineering, computer graphics, CS education

Selected Publications (see dgraf.ch for a full list of publications and for PDFs of all my publications and slides):

- Loukas Georgiadis, D. G., Giuseppe F. Italiano, Nikos Parotsidis, Przemysław Uznański: *All-Pairs 2-Reachability in $O(n^\omega \log n)$ Time*, ICALP 2017.
- Andreas Bärtschi, D. G., Paolo Penna: *Truthful Mechanisms for Delivery with Mobile Agents*, ATMOS 2017.
- Samuel Grütter, D. G., Benjamin Schmid: *Watch them Fight! Creativity Task Tournaments of SOI, IOI* 2016.
- Daniel Graf: *How to Sort by Walking on a Tree*, ESA 2015, Algorithmica 2017, dgraf.ch/treesort.
- D. G., Daniele Panozzo, Olga Sorkine-Hornung: *Mobile Image Retargeting*, VMV 2013, refoorm.at.

External Reviewer for Conferences: ESA'18, LATIN'16, IWOCA'16, FUN'16, SIROCCO'16, ATMOS'16

Short-Term Plans

Completion of PhD Studies, ETH Zurich, Advisor: Prof. Dr. Peter Widmayer, December 2018

Completion of Teaching Certificate, ETH Zurich, Advisor: Prof. Dr. Juraj Hromkovič, Spring 2019

Additional Information

- Computer skills: C, C++, Objective-C, Python, MATLAB, Eiffel, Java, LaTeX, Linux, macOS, Final Cut Pro
- Extracurricular activities:
 - Organizer of sports and trekking camps as a scout guide, January 2005 to December 2014
 - Mandatory military service in the computer network operations division, October 2009 to August 2010
 - Hobbies: photography, piano, hiking
- Languages: German (native), English (fluent), French (good), Russian (beginner)

References

I am happy to provide references upon request.